# INDEX


ABDOMINAL nerve cord, cockroach, properties of connective tissue sheath of, 278.
ABPLANALP, H. *See* W. O. WILSON, 415.
Absorption of light by lower vertebrate lenses, 375.
Acclimation of oxygen consumption by cockroach, 53.
Acclimation, thermal, of mollusc, 129.
Accumulation of radionuclides by fishes, 336, 352.
Acetylcholine and frog brain oxygen consumption, 314.
Acmaea, distribution and acclimation of, 129.
Actin participation in actomyosin contraction, 290.
Action potential of cockroach nerve cord, 278.
Action potential of vertebrate lens, 375.
Activation of Urechis, Nereis and Asterias eggs, 313.
Activity of neurosecretory cells in crayfish, 62.
Aerobiosis of marine fungi, 410.
After-effect of light on chicken development, 415.
AIRTH, R. L., AND L. R. BLINKS. A new phycoerythrin from Porphyra, 321.
Albinism, inheritance of in snails, 45.
Algae, association of with marine fungi, 410.
Algae, brine, culture of, 223, 230.
Algae, pigments of, 321.
ALLEN, M. D. *See* N. E. KEMP, 293, 305.
Alloxan, radioactive, uptake and distribution of in toadfish tissues, 300.
American cockroach, oxygen consumption of, 53.
Amphibian lens sensitivity, 375.
Amylase, chromatographic study of, 298.
Anatomy of digenetic trematode, 248.
ANDERSON, J. C. Relations between metabolism and morphogenesis during regeneration in Tubifex. II., 179.
ANDERSON, J. M. The innervation of muscle fibers in the extrinsic stomach-retractor strands of the starfish, Asterias, 297.
ANDERSON, J. M. Observations on autotomy in the starfish, Asterias, 297.
Annelid, regeneration of, 179.
Annual Report of the Marine Biological Laboratory, 1.
Antarctic bryozoa, 123.
Antigens of Paramecium, 358.
Areal differences in oyster setting, 387.
Arginine biosynthesis in Escherichia, 319.
Artemia, growth of, 230.
Asterias, membrane potential and resistance of eggs of, 153.
Asterias, method of for opening bivalves, 114.
Astynax, osmoregulation of, 399.
Autotomy in starfish, 297.
Avian development, effect of light on, 415.
Axon of squid, conduction velocity in, 295.
Azygia, morphology and life-history of, 248.

BANKSIOLA, contact chemoreceptors in, 92.
BARR, L. *See* J. W. GREEN, 290.
Behavioral change in population of Nassarius, 291.
BILEAU, SR. M. CLAIRE OF THE SAVIOR. The uptake of I-131 by the thyroid gland of turtles after treatment with thiourea, 190.
Bisexuality in echinoids, 328.
Bivalves, opening of by sea stars, 114.
Bladder, air, role of in sound production by fish, 393.
Blastema formation in Tubifex, 179.
Blastoderms, chick, respiratory metabolism of, 77.
BLINKS, L. R. *See* R. L. AIRTH, 321.
Blocking time of cockroach nerve cord, 278.
Blowfly, ingestion of carbohydrates by, 204.
BOOLOOTIAN, R. A., AND A. R. MOORE. Hermaphroditism in echinoids, 328.
BOROUGHS, H., S. J. TOWNSLEY AND R. W. HIATT. The metabolism of radionuclides by marine organisms. I, II., 336, 352.
Brine algae, culture of, 223.
BROCKWAY, A. P. The effects of x-irradiation on the pupae of the yellow mealworm, Tenebrio, 297.
Bryozoa, marine, studies on, 123.
BUCK, J. *See* J. W. HASTINGS, 101.
Budding of Hydra, effect of x-irradiation on, 240.

CADDIS flies, chemoreceptors in, 92.
CAGLE, J. *See* A. K. PARPART, 294.
CAIN, G. L. Studies on cross-fertilization and self-fertilization in Lymnaea, 45.
Calling of sea robins, 393.
Cancer therapy, interpretation of action of certain chemical agents in, 291.

Carangoides, metabolism of radionuclides by, 336.
Carbohydrate ingestion by blowfly, 204.
CARLSON, F. D. *See* P. G. LENHERT, 293; R. E. THIES, 295.
Cell types, neurosecretory, in crayfish, 62.
CHAET, A. B. Chromatographic study of crystalline style amylase, 298.
CHAET, A. B. Mechanism of toxic factor release, 298.
CHASE, A. M. A combined effect of urea and borate buffer on uricase activity, 299.
Chemoreception in blowfly, 204.
Chemoreceptors in Trichoptera, 92.
CHENEY, R. H. Dimethylated dioxypurines and/or x-ray inhibition of Arbacia egg development, 299.
Chick blastoderms, respiratory metabolism of, 77.
Chicken development, effect of light on, 415.
Chorion of Fundulus egg, development of, 293.
Chromatophorotropic principles of Uca, 312.
Chromosome behavior during oogenesis of rotifer, 364.
Chrysemys, uptake of radio-iodine by thyroid of, 190.
CLAFF, C. L., F. N. SUDAK AND N. R. STONE. Experimental hypothermia and carbon dioxide production in the white rat, 288.
Clams, opening of by starfish, 114.
Cleavage furrows in Arbacia eggs, induction of, 317.
Cleavage of Ilyanassa egg, distribution of mitochondria and lipid droplets during, 300.
Cleavage time of Arbacia egg, effect of argon on at high pressures, 303.
CLEMENT, A. C., AND F. E. LEHMANN. The distribution of mitochondria and lipid droplets during early cleavage in Ilyanassa, 300.
CLOWES, G. H. A. *See* M. E. KRAHL, 307.
Cockroach, oxygen consumption of, 53.
Cockroach abdominal nerve cord, properties of connective tissue sheath of, 278.
COHEN, M. J. Sensory and motor relationships of a crustacean central ganglion, 318.
Cold, acclimation of Acmaea to, 129.
Cold, effect of on oxygen consumption of cockroach, 53.
COLWIN, A. L., L. H. COLWIN AND D. E. PHILPOTT. Sperm entry in Hydroides and Saccoglossus studied by electron microscopy, 289.
COLWIN, L. H., A. L. COLWIN AND D. E. PHILPOTT. Electron microscope studies of the egg surfaces and membranes of Hydroides and Saccoglossus, 289.
Comparative physiology of nervous system, 278.
Connective tissue sheath of cockroach abdominal nerve cord, 278.
Contact chemoreceptors in Trichoptera, 92.
Contractility of glycerinated Vorticellae, 319.
COOPERSTEIN, S. J., A. LAZAROW AND W. LAUFER. The uptake and distribution of radioactive alloxan in islet and other tissues of the toadfish, 300.
Copulation in snails, 45.
Corpuscles of Stannius, role of in teleost osmoregulation, 399.
Cortex of Fundulus egg, relation of to formation of perivitelline space, 304.
Cortical cytoplasmic changes after fertilization of Fundulus eggs, 305.
Coryphaena, metabolism of radionuclides by, 336.
COWGILL, R. W. Phosphorylase system in the lobster, 300.
Crassostrea, setting in, 387.
CRAVEN, G. *See* G. T. SCOTT, 294; R. DE VOE, 296.
Crayfish neurosecretory cell types, 62.
Cross-fertilization in Lymnaea, 45.
Crustacean, neurosecretory cell types in, 62.
Culture of brine algae, 223.
Currents, water, role of in oyster setting, 387.
Cyanide effects on Tubifex metabolism, 179.
Cyclic activity of turtle thyroid, 190.
Cytochrome oxidase activity in chick embryos, 77.
Cytology of corpuscles of Stannius, 399.
Cytology of oogenesis in rotifer, 364.
CZERLINSKI, G. H. *See* I. M. KLOTZ, 306.

DCA, effect of on cytology of corpuscles of Stannius, 399.
DEHNEL, P. A., AND E. SEGAL. Acclimation of oxygen consumption to temperature in Periplaneta, 53.
Dehydrogenase activity during Asterias development, 305.
Density of oyster setting, 387.
Depth in relation to oyster setting, 387.
DETHIER, V. G., D. R. EVANS AND M. V. RHOADES. Some factors controlling the ingestion of carbohydrates by the blowfly, 204.
Developing ova, effect of accelerating and retarding factors on, 309.
Development, chicken, effect of light on, 415.
Development of Arbacia egg, inhibition of by dimethylated dioxypurines and/or x-rays, 299.
DIBBELL, D., AND H. HOLTZER. The action of Nessler's reagent and ATP on extracted and denatured muscle, 301.
Differentiation of chick embryos, 77.

Digenetic trematode, morphology and life-history of, 248.
Dimorphism in echinoids, 328.
Directions, flight, of homing terns, 235.
Distribution of Bryozoa, 123.
Dolphin, metabolism of radionuclides by, 336.
Dunaliella, culture of, 223, 230.
DURAND, J. B. Neurosecretory cell types and their secretory activity in the crayfish, 62.

ECHINODERM, hermaphroditism in, 328.
Echinoderm eggs, membrane potential and resistance of, 153.
Echinoids, hermaphroditism in, 328.
Ecological implications of radioactivity in the sea, 336, 352.
Ecological relationships of phyto- and zooplankton, 230.
Ecology of Acmaea, 129.
Ecology of bryozoa, 123.
Ecology of lower marine fungi, 410.
Ecology of oyster setting, 387.
Ecology of salt ponds, 223, 230.
Effect of light on chicken development, 415.
Egg, starfish, membrane potential and resistance of, 153.
Egg formation in Habrotrocha, 364.
Egg surfaces and membranes of Hydroides and Saccoglossus, 289.
Electric current, effects of on contraction of Spirogyra chloroplasts, 310.
Electrical properties of starfish eggs, 153.
Electrolytes, effect of on cytology of corpuscles of Stannius, 399.
Electrophysiology of vertebrate lens, 375.
ELLIOTT, A. M. *See* C. RAY, JR., 310.
ELLIOTT, A. M., AND D. E. OUTKA. Fermentation studies in 9 varieties of Tetrahymena, 301.
ELLIOTT, A. M., AND J. W. TREMOR. Electron microscope studies of conjugating Tetrahymena, 302.
Embryos, chick, respiratory metabolism of, 77.
Endocrine gland (thyroid) of turtle, 190.
Enzyme activity of chick blastoderm, 77.
Enzymes, role of in firefly light production, 101.
Estradiol, effect of on invertebrate metabolism in vitro, 318.
Euthynnus, metabolism of radionuclides by, 336.
EVANS, D. R. *See* V. G. DETHIER, 204.
Exochella, morphology and distribution of, 123.
Explantation of chick embryos, 77.

FEEDING of Trichoptera, 92.
Feeding reaction of blowfly, 204.
Fertilization, cross- and self-, in Lymnaea, 45.
Fertilization of starfish egg, membrane potential and resistance before and after, 153.
Fertilized Arbacia eggs, change in rate of release of K-42 in, 296.
Fertilized egg of Arbacia, hyaline polymer of, 294.
FIGGE, F. H. J., AND R. WICHTERMAN. Influence of hematoporphyrin and phenol on x-radiation sensitivity of Paramecium, 302.
Filtering action of vertebrate lenses, 375.
FINGER, I. Immobilizing and precipitating antigens of Paramecium, 358.
Firefly pseudoflash, 101.
Fish lens spectral sensitivity, 375.
Fish, marine, influencing calling of by sound, 393.
Fish, osmoregulation of, 399.
Fishes, metabolism of radionuclides by, 336, 352.
Fixation and staining of Ilyanassa eggs, 307.
Flight directions of homing terns, 235.
FRASER, R. C. The presence and significance of respiratory metabolism in streak-forming chick blastoderms, 77.
FRIEDL, F. *See* G. C. STEPHENS, 312, 313.
FRINGS, H., AND M. FRINGS. The location of contact chemoreceptors sensitive to sucrose solutions in adult Trichoptera, 92.
Frog lens spectral sensitivity, 375.
Fungi, marine, ecology of, 410.

GENETIC nature of cyclic variations in turtle thyroid activity, 190.
Genetics of snails, 45.
GIBOR, A. The culture of brine algae, 223.
GIBOR, A. Some ecological relationships between phyto- and zooplankton, 230.
Glucose-utilization pathways in eggs, 307.
Glutathione, post-irradiation treatment of Hydra with, 240.
GOLDSMITH, T. H., AND D. R. GRIFFIN. Further observations of homing terns, 235.
Gonad size in Acmaea, 129.
GREEN, J. W., M. HARSCH, L. BARR AND C. L. PROSSER. Ionic regulation in the fiddler crabs, Uca sp., 290.
GRIFFIN, D. R. *See* T. H. GOLDSMITH, 235.
GROSS, P. R. Amphibian yolk: chemistry and ultrastructure, 287.
GROSS, P. R., D. E. PHILPOTT AND S. NASS. Electron microscopy of the mitotic apparatus in dividing Arbacia eggs, 290.
GRUNDFEST, H. *See* A. TYLER, 153.
Gustatory responses of blowflies, 204.
GUTTMAN, B. *See* G. C. STEPHENS, 312.

HAGERMAN, D. D. Invertebrate metabolism in vitro not affected by estradiol, 318.
HARSCH, M. *See* J. W. GREEN, 290.

HASTINGS, J. W., AND J. BUCK. The firefly pseudoflash in relation to photogenic control, 101.
HAYASHI, T., R. ROSENBLUTH, P. SATIR AND M. VOZICK. Participation of actin in actomyosin contraction, 290.
HAYWOOD, C. The effect of argon at high pressures on the cleavage time of the sea urchin, Arbacia, 303.
Heart physiology of marine fish, 316.
Heart rate of Acmaea, 129.
Heat, acclimation of Acmaea to, 129.
Heat, effect of on oxygen consumption of cockroaches, 53.
HEILBRUNN, L. V., AND W. L. WILSON. An interpretation of the action of certain chemical agents used in cancer therapy, 291.
Hemerythrin, nature of metal-to-protein bond in, 293.
Hemerythrin and hemocyanin, chemical nature of bound oxygen in, 306.
Hemocyanin, Busycon, crystallization of, 306.
Hemoglobin of Petromyzon, molecular weight of, 293.
Hermaphroditism in echinoids, 328.
HIATT, R. W. *See* H. BOROUGHS, 336, 352.
Histology of neurosecretory cell types in crayfish, 62.
HOLTZER, H. *See* D. DIBBELL, 301.
HOLTZER, H., J. LASH AND S. HOLTZER. The enhancement of somitic muscle maturation by the embryonic spinal cord, 303.
Homing terns, flight directions of, 235.
Hormone activity in crayfish, 62.
HSU, W. S. Oogenesis in Habrotrocha, 364.
HUVER, C. W. The relation of the cortex to the formation of a perivitelline space in the eggs of Fundulus, 304.
Hydra, twinning in, 269
Hydra, x-irradiation of, 240.
Hypothermia and carbon dioxide production in white rat, 288.
Hypoxic glow in fireflies, 101.

I-131, uptake of by turtle thyroid, 190.
Immobilizing antigens of Paramecium, 358.
Immunology of Paramecium, 358.
Indophenol oxidase in chick embryo, 77.
Influencing calling of sea robins, 393.
Ingestion of carbohydrates by blowfly, 204.
Inheritance of albinism in snails, 45.
Inhibiting agents in Tubularia, 315.
Initial flight directions of homing terns, 235.
Innervation of Asterias stomach-retractor muscle fibers, 297.
Insect, metabolism of in relation to temperature, 53.
Insect abdominal nerve cord, properties of connective tissue sheath of, 278.
Insects, chemoreception in, 92.
Insemination in Lymnaea, 45.
Insemination of starfish eggs, effect of on membrane potential and resistance, 153.
Intensity of oyster setting, 387.
Intertidal mollusc, microgeographic variation in, 129.
Iodoacetate, effect of on Tubifex regeneration, 179.
Ion exchange in Ulva, 294.
Ion replacement in Ulva, 296.
Ionic regulation in fiddler crab, 290.
Ionizing radiations, effects of on Hydra, 240.
Isotopes, metabolism of by marine organisms, 336, 352.

JENNER, C. E. The occurrence of a crystalline style in the marine snail, Nassarius, 304.
JENNER, C. E. Seasonal resorption of the copulatory organ in Nassarius and Littorina, 305.
JENNER, C. E. A striking behavioral change leading to the formation of extensive aggregations in a population of Nassarius, 291.
JENNER, C. E. The timing of reproductive cessation in geographically separated populations of Nassarius, 292.

KAO, C. Y. Absence of membrane potential in presence of asymmetrical ion distribution in the Fundulus egg, 292.
KAO, C. Y. *See* A. TYLER, 153.
KELTCH, A. K. *See* M. E. KRAHL, 307.
KEMP, N. E., AND M. D. ALLEN. Electron microscopic observations on changes in the cortical cytoplasm after fertilization of Fundulus eggs, 305.
KEMP, N. E., AND M. D. ALLEN. Electron microscopic observations on the development of the chorion of Fundulus, 293.
KENNEDY, D., AND R. D. MILKMAN. Selective light absorption by the lenses of lower vertebrates, and its influence on spectral sensitivity, 375.
KIVY-ROSENBERG, E., AND B. W. ZWEIFACH. Dehydrogenase activity in developmental stages of Asterias as measured with tetrazolium salts, 305.
KLOTZ, I. M., AND T. A. KLOTZ. The chemical nature of bound oxygen in hemerythrin and in hemocyanin, 306.
KLOTZ, I. M., AND T. A. KLOTZ. The nature of the metal-to-protein bond in hemerythrin, 293.

KLOTZ, I. M., T. A. KLOTZ AND G. H. CZERLINSKI. Crystallization of Busycon hemocyanin, 306.
KRAHL, M. E., A. K. KELTCH, C. P. WALTERS AND G. H. A. CLOWES. Pathways of glucose-$C^{14}$ utilization in eggs of Arbacia, Mactra and Chaetopterus, 307.
Kuhlia, metabolism of radionuclides by, 336.

LAMPYRID fireflies, photogenic control in, 101.
LASH, J. *See* H. HOLTZER, 303.
LAUFER, W. *See* S. J. COOPERSTEIN, 300.
LAVOIE, M. E. How sea stars open bivalves, 114.
LAZAROW, A. *See* S. J. COOPERSTEIN, 300.
LEES, A. D. Methods for investigating the locations of the photoperiodic receptors in insects, 319.
LEHMANN, F. E. Improved fixing and staining methods for cellular structures in Ilyanassa eggs, 307.
LEHMANN, F. E. *See* A. C. CLEMENT, 300.
LENHERT, P. G., W. E. LOVE AND F. D. CARLSON. The molecular weight of hemoglobin from Petromyzon, 293.
Lenses of lower vertebrates, selective light absorption by, 375.
LEVINE, L. Contractility of glycerinated Vorticellae, 319.
Life-history of Azygia, 248.
Light, effect of on chicken development, 415.
Light absorption by lenses of lower vertebrates, 375.
Light production of firefly, 101.
Location of chemoreceptors in Trichoptera, 92.
Long Island Sound, relative intensity of oyster setting in, 387.
LOOSANOFF, V. L., AND C. A. NOMEJKO. Relative intensity of oyster setting in different years in the same areas of Long Island Sound, 387.
Loss of radionuclides by fishes, 336, 352.
LOVE, W. E. *See* P. G. LENHERT, 293.
LOWER, G. G. *See* D. E. PHILPOTT, 294.
Luminescence of fireflies, 101.
Lymnaea, cross- and self-fertilization in, 45.
Lynch, W. F. Factors inhibiting metamorphosis in tadpoles of Amaroecium, 308.

MAAS, W. K. Regulation of arginine biosynthesis in Escherichia, 319.
Magnesium sulfate, post-irradiation treatment of Hydra with, 240.
Magnifying the invisible, 294.
Marine bryozoa, studies on, 123.
Marine fish, influencing calling of by sound, 393.
Marine fungi, ecology of, 410.
Marine organisms, metabolism of radionuclides by, 336, 352.
Marine red alga, new pigment from, 321.
MARSLAND, D. *See* A. M. ZIMMERMAN, 317.
Maturation of rotifer egg, 364.
Maturity, chicken, effect of light on development of, 415.
MEINKOTH, N. A. A North American record of Rhopalura, a parasite of the nemertean Amphiporus, 308.
Melanophore-dispersing hormone of Uca, rate of disappearance of from blood, 313.
Membrane potential and resistance of starfish egg, 153.
Mendelian inheritance in snails, 45.
MENKIN, V., G. MENKIN AND L. MENKIN. Studies on accelerator and retarding factors of one species on the developing ova of an unrelated form, 309.
MENKIN, V., G. MENKIN AND W. ROGERS. Further studies on some factors concerned in the regulation of cell division, 309.
Metabolism during regeneration of Tubifex, 179.
Metabolism of chick embryos, 77.
Metabolism of cockroach in relation to temperature, 53.
Metabolism of radionuclides, 336, 352.
Metamorphosis of Amaroecium tadpoles, 308.
Metamorphosis of oysters, 387.
Microgeographic variation in mollusc, 129.
Microinjection of Asterias eggs, 153.
Micromanipulation of Arbacia eggs, 316.
MILKMAN, R. D. *See* D. KENNEDY, 375.
Mitosis, factors concerned in regulation of, 309.
Mitosis in Arbacia, electron microscopy of, 290.
Modification of x-ray injury to Hydra, 240.
Molecular weight of new phycoerythrin, 321.
Mollusc, cross- and self-fertilization in, 45.
Mollusc, microgeographic variation in, 129.
Mollusc, setting in, 387.
Molluscs, opening of by starfish, 114.
Molting cycle of crayfish in relation to neurosecretion, 62.
MONROY, A. *See* A. TYLER, 296, 153.
MOORE, A. R. *See* R. A. BOOLOOTIAN, 328.
Morphogenesis of Tubifex, 179.
Morphology of Azygia, 248.
Morphology of bryozoa, 123.
MOULTON, J. M. Influencing the calling of sea robins with sound, 393.
Mouthparts of Trichoptera, 92.
Muscle, action of Nessler's reagent and ATP on extracted and denatured, 301.
Muscle, concentration of strontium-89 in, 336.
Muscle maturation, somitic, enhancement of by embryonic spinal cord, 303.
Myosin, frog, ATPase activity of, 320.

Mytilus, opening of by starfish, 114.
Myxomycetes, marine, ecology of, 410.

NASS, S. Amphibian yolk: the phosphoprotein phosphatase system, 287.
NASS, S. *See* P. R. GROSS, 290.
Navigation of terns, 235.
Neothunnus, metabolism of radionuclides by, 336.
Nerve cord, cockroach, properties of connective tissue sheath of, 278.
Neurophysiology of cockroach abdominal nerve cord, 278.
Neurosecretory cell types in crayfish, 62.
Nitrogen supply, importance of for growth of brine algae, 223.
Noise production by sea robins, 393.
NOMEJKO, C. A. *See* V. L. LOOSANOFF, 387.

OOGENESIS in Habrotrocha, 364.
Opening of bivalves by sea stars, 114.
Orconectes, neurosecretory cell types in, 62.
Orientation of homing terns, 235.
Osmoregulation of teleosts, 399.
OSTERHOUT, W. J. V. Effects of electric current on the contraction of the chloroplasts of Spirogyra, 310.
OUTKA, D. *See* A. M. ELLIOTT, 301.
Ova, starfish, membrane potential and resistance of, 153.
Oxygen, role of in firefly light production, 101.
Oxygen consumption of cockroach, 53.
Oxygen consumption of Tubifex, 179.
Oyster setting, intensity of, 387.
Oysters, opening of by starfish, 114.

PADAWER, J. *See* A. M. ZIMMERMAN, 317.
Paramecium, antigens of, 358.
Parasite, morphology and life-history of, 248.
Parasite of nemertean, 308.
Parasites of Carcinedes, 295.
Parasites of dogfish, carbohydrates metabolized by, 311.
Parasites of Littorina, method for recognition of, 316.
PARK, H. D. Modification of x-ray injury to Hydra littoralis by post-irradiation treatment with magnesium sulfate and glutathione, 240.
PARPART, A. K., AND J. CAGLE. Hyaline polymer of the fertilized egg of Arbacia, 294.
Pelmatohydra, twinning in, 269.
Periplaneta, oxygen consumption of, 53.
Permeability of cockroach abdominal nerve cord, 278.
pH, effect of on growth of brine algae, 223.
PHILPOTT, D. E. *See* A. L. COLWIN, 289; L. H. COLWIN, 289; P. R. GROSS, 290.
PHILPOTT, D. E., AND G. G. LOWER. Magnifying the invisible, 294.
Phormia regina, ingestion of carbohydrates by, 204.
Phosphate, importance of for brine algal growth, 223.
Phosphorylase system, in lobster, 300.
Photinus, photogenic control in, 101.
Photogenic control in firefly, 101.
Photoperiodic receptors of insects, 319.
Photuris, photogenic control in, 101.
Phryganea, contact chemoreceptors in, 92.
Phycoerythrin from Porphyra, 321.
Phycomycetes, ecology of, 410.
Phyto- and zooplankton, ecological relationships of, 230.
Pigmentation of lower vertebrate eyes, 375.
Pigments of algae, 321.
Pitressin, effect of on cytology of corpuscles of Stannius, 399.
Planktonic existence of Nassarius, effect of substrate on duration of, 312.
Platycentropus, contact chemoreceptors in, 92.
Platymonas, culture of, 223, 230.
Polluted sea water, presence of fungi in, 410.
Porphyra, new phycoerythrin from, 321.
Post-irradiation treatment of hydra, 240.
Potassium, role of in cockroach nerve cord conduction, 278.
Potassium content of Asterias eggs, 153.
Potential, action, in scallop eye retina, 310.
Potential, membrane, of Fundulus egg, 292.
Potential, membrane, of starfish egg, 153.
Potential, slow action, of vertebrate lens, 375.
Precipitating antigens of Paramecium, 358.
Preference-aversion tests in blowfly, 204.
Pressure-centrifuge studies on mast cells, 317.
Prionotus, influencing calling of, 393.
Productivity of bottom areas of Long Island Sound, 387.
Properties of connective tissue sheath of cockroach nerve cord, 278.
PROSSER, C. L. *See* J. W. GREEN, 290.
Protective effect of magnesium sulfate and glutathione against radiation damage to hydra, 240.
Protozoan, antigens of, 358.
Pseudoflash, firefly, 101.
Ptilostomis, contact chemoreceptors in, 92.
Pyrophorus, photogenic control in, 101.

RADIO-IODINE, uptake of by turtle thyroid, 190.
Radionuclides, metabolism of, 336, 352.
RASQUIN, P. Cytological evidence for a role of the corpuscles of Stannius in the osmoregulation of teleosts, 399.

RATLIFF, F. Retinal action potentials in the eye of the scallop, 310.
RAY, C., JR., AND A. M. ELLIOTT. Strain differences in viability following conjugation within variety 9 of Tetrahymena, 310.
READ, C. P. Carbohydrate metabolized by cestode parasites of dogfish, 311.
Recovery time of cockroach nerve cord, 278.
Red algae, new pigment from, 321.
Regeneration of Tubifex, 179.
Reproduction of Pelmatohydra twins, 269.
Reproductive cessation in Nassarius, 290.
Resistance, membrane, of starfish egg, 153.
Respiration of cockroaches, 45.
Respiratory metabolism of chick embryos, 77.
RHOADES, M. V. *See* V. DETHIER, 204.
ROEDER, K. D. *See* B. M. TWAROG, 278.
Roentgen irradiation of hydra, 240.
ROGERS, W. *See* V. MENKIN, 309.
ROGICK, M. Studies on marine bryozoa. VIII., 123.
Role of corpuscles of Stannius in teleost osmoregulation, 399.
ROSENBLUTH, R. *See* T. HAYASHI, 290.
Rotifer, oogenesis in, 364.
RUGH, R. *See* J. WOLF, 288.
RUGH, R., AND J. WOLF. Recovery from x-irradiation effects at the cellular level, 311.

SALINITY tolerance of brine algae, 223.
SATIR, P. *See* T. HAYASHI, 290.
SCHELTEMA, R. S. The effect of substrate on the length of planktonic existence in Nassarius, 312.
SCOTT, G. T. *See* R. DE VOE, 296.
SCOTT, G. T., R. DE VOE AND G. CRAVEN. Sodium ion exchange in Ulva, 294.
Sea robins, influencing calling of, 393.
Sea stars, method of for opening bivalves, 114.
Sea urchin, hermaphroditism in, 328.
Seasonal activity of turtle thyroid, 190.
Seasonal resorption of copulatory organ in Nassarius and Littorina, 305.
Secretory activity of crayfish cells, 62.
SEGAL, E. Microgeographic variation as thermal acclimation in an intertidal mollusc, 129.
SEGAL, E. *See* P. A. DEHNEL, 53.
Selective light absorption by lenses of lower vertebrates, 375.
Sensitivity of Trichoptera chemoreceptors to sucrose, 92.
Sensitivity, spectral, of lower vertebrate lenses, 375.
Sensory control of blowfly carbohydrate ingestion, 204.
Sensory and motor relationships of crustacean central ganglion, 318.
Serotypes of Paramecium, 364.
Setting, oyster, relative intensity of, 387.
Sexual characteristics, chicken, effect of light on development of, 415.
Size in relation to cockroach oxygen consumption, 53.
Skipjack, metabolism of radionuclides by, 336.
Snail, cross- and self-fertilization in, 45.
Sodium, role of in cockroach nerve cord conduction, 278.
Sodium content of Asterias eggs, 153.
Sound, influencing calling of sea robins with, 393.
Spawning behavior of Acmaea, 129.
Spectral sensitivity of lower vertebrate lenses, 375.
Sperm entry in Hydroides and Saccoglossus, 289.
Sperm viability in snails, 45.
Spermatozoa in dogfish oviducal gland, 314.
Stannius, corpuscles of, role of in teleost osmoregulation, 399.
Starfish, method of for opening bivalves, 114.
Starfish egg, membrane potential and resistance of, 153.
Stephanoptera, culture of, 223, 230.
STEPHENS, G. C., F. FRIEDL AND B. GUTTMAN. Electrophoretic separation of chromatophorotropic principles of the fiddler crab, Uca, 312.
STEPHENS, G. C., A. STRICKHOLM AND F. FRIEDL. The rate of disappearance of the melanophore-dispersing hormones from the blood of the fiddler crab, 313.
Stichococcus, culture of, 223, 230.
STONE, N. R. *See* C. L. CLAFF, 288.
Streak-forming chick blastoderm, metabolism of, 77.
STRICKHOLM, A. *See* G. C. STEPHENS, 313.
Strongylocentrotus, hermaphroditism in, 328.
STUNKARD, H. W. The morphology and life-history of the digenetic trematode, Azygia, 248.
STUNKARD, H. W. Studies on parasites of the green crab, Carcinides, 295.
Style, crystalline, occurrence of in Nassarius, 304.
Sucrose, sensitivity of Trichoptera chemoreceptors to, 92.
SUDAK, F. N. *See* C. L. CLAFF, 288.
Sugars, ingestion of by blowfly, 204.

TAXONOMY of bryozoa, 123.
Taxonomy of digenetic trematode, 248.
Teleosts, osmoregulation of, 399.
TEMIN, H. M. Studies on activation of Urechis, Nereis and Asterias eggs, 313.
Temperature, role of in growth of brine algae, 223.

Temperature acclimation of Acmaea, 129.
Temperature effect on oxygen consumption of cockroach, 53.
Temporal differences in oyster setting, 387.
Terns, homing, initial flight directions of, 235.
TE WINKEL, L. E. Spermatozoa in the oviducal gland of the smooth dogfish, Mustelus, 314.
Tetrahymena, fermentation studies in, 301.
Tetrahymena, strain differences in viability following conjugation of, 310.
Thermal acclimation of mollusc, 129.
THIES, R. E., AND F. D. CARLSON. Conduction velocity in the giant axon of the squid, Loligo, 295.
Thiourea treatment of turtles, 190.
Thyroid, turtle, uptake of I-131 by, 190.
Tilapia, metabolism of radionuclides by, 336, 352.
Tissue culture of chick embryos, 77.
TOKAY, E. Acetylcholine and frog brain oxygen consumption, 314.
Topography as factor in homing response of terns, 235.
TOWNSLEY, S. J. *See* H. BOROUGHS, 336, 352.
Toxic factor release, mechanism of, 298.
Tracheal end cells in fireflies, role of in light production, 101.
Trematode, morphology and life-history of, 248.
TREMOR, J. W. *See* A. M. ELLIOTT, 302.
Trichoid sensilla in Trichoptera, 92.
Trichoptera, chemoreceptors of, 92.
Tubifex, metabolism and morphogenesis during regeneration of, 179.
Tuna, metabolism of radionuclides by, 336.
TURNER, C. L. Twinning and reproduction of twins in Pelmatohydra, 269.
Turtle thyroid gland, uptake of I-131 by, 190.
TWAROG, B. M., AND K. D. ROEDER. Properties of the connective tissue sheath of the cockroach abdominal nerve cord, 278.
TWEEDELL, K. S. A comparison of two inhibiting agents in Tubularia, 315.
Twinning in Pelmatohydra, 269.
TYLER, A., AND A. MONROY. Change in rate of release of K-42 upon fertilization in eggs of Arbacia, 296.
TYLER, A., A. MONROY, C. Y. KAO AND H. GRUNDFEST. Membrane potential and resistance of the starfish egg before and after fertilization, 153.

ULTRAVIOLET absorption by frog and fish lenses, 375.
Uptake of I-131 by turtle thyroid, 190.
Uptake of radionuclides by fishes, 336, 352.
Uricase activity, combined effect of urea and borate buffer on, 299.

VARIABILITY of reaction of turtle thyroid to thiourea treatment, 190.
Vertebrates, lower, selective light absorption by lenses of, 375.
DE VILLAFRANCA, G. W. The ATPase activity of frog myosin, 320.
VISHNIAC, H. S. On the ecology of the lower marine fungi, 410.
Visual pigments of lower vertebrate lenses, 375.
DE VOE, R. *See* G. T. SCOTT, 294.
DE VOE, R., G. T. SCOTT and G. CRAVEN. The reversible replacement of potassium by rubidium ion in Ulva, 296.
VOZICK, M. *See* T. HAYASHI, 290.

WALTERS, C. P. *See* M. E. KRAHL, 307.
WICHTERMAN, R. Attempts to breed an x-ray resistant clone of Paramecium, 315.
WICHTERMAN, R. *See* F. H. J. FIGGE, 302.
WIERCINSKI, F. J. The micromanipulation of Arbacia eggs, 316.
WILBER, C. G. The physiology of the heart in marine fish, 316.
WILLEY, C. H. A rapid method for recognition of specimens of Littorina infected with trematode larvae, 316.
WILSON, W. L. *See* L. V. HEILBRUNN, 291.
WILSON, W. O., A. E. WOODARD AND H. ABPLANALP. The effect and after-effect of varied exposure to light on chicken development, 415.
WOLF, J. *See* R. RUGH, 311.
WOLF, J., AND R. RUGH. The relation of gonad hormones to x-irradiation sensitivity in mice, 288.
WOODARD, A. E. *See* W. O. WILSON, 415.
Worm, regeneration of, 179.

X-IRRADIATION, recovery from effects of, at cellular level, 311.
X-irradiation sensitivity of mice, 288.
X-irradiation of Tenebrio, 297.
X-organ of crayfish, 62.
X-ray injury to hydra, modification of, 240.
X-ray resistant clone of Paramecium, attempts to breed, 315.
X-ray sensitivity of Paramecium, effect of hematoporphyrin and phenol on, 302.

YOLK, amphibian, chemistry and ultrastructure of, 287.
Yolk, amphibian, phosphoprotein and phosphatase system of, 287.

ZIMMERMAN, A. M., AND D. MARSLAND. Induction of premature cleavage furrows in the eggs of Arbacia, 317.
ZIMMERMAN, A. M., J. PADAWER AND D. MARSLAND. Pressure-centrifuge studies on mast cells, 317.
Zoo- and phytoplankton, ecological relationships of, 230.
ZWEIFACH, B. W. *See* E. KIVY-ROSENBERG, 305.